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ABSTRACT

The purpose of the symposium is to investigate those factors that obstruct and those factors that facilitate the knowledge utilization process for school reform in general and Mastery In Learning Project schools in particular. The Mastery in Learning Project (MILP) is the National Education Association's site-based, faculty-led school reform network of 26 schools. Four papers are included: (1) "The Literature on Teacher Utilization of Research: Implications for the School Reform Movement," by Douglas Fleming, provides a review of literature, indicates areas for researchers to consider in light of school reform, and links research to the design and implementation of MILP; (2) "Empowering Teachers through Knowledge," by Sharon Castle, describes MILP, discusses the role of knowledge utilization in site-based, faculty-led school reform, and presents the methodology used to investigate knowledge utilization in MILP schools; (3) "Obstacles to Teacher Use of the Knowledge Base for School Reform," by Gary Rackcliffe, presents results of the study and conclusions concerning the obstacles experienced in MILP schools; (4) "Facilitating Application of the Knowledge base to School Reform Priorities," by Nel Ward, presents results of the study and conclusions concerning factors facilitating knowledge utilization and potential solutions to the obstacles. (Author)

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TEACHER EMPOWERMENT THROUGH KNOWLEDGE: LINKING RESEARCH AND PRACTICE FOR SCHOOL REFORM

SHARON CASTLE, EDITOR

- The Literature on Teacher Utilization of Research: Implications for the School Reform Movement. **Douglas Fleming.**
- Empowering Teachers Through Knowledge. **Sharon Castle.**
- Obstacles to Teacher Use of the Knowledge Base for School Reform. **Gary Rackliffe.**
- Facilitating Application of the Knowledge Base to School Reform Priorities. **Nel Ward**

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Sharon Castle, Editor

Abstract

The purpose of the symposium is to investigate those factors that obstruct and those factors that facilitate the knowledge utilization process for school reform in general and Mastery In Learning Project schools in particular. The Mastery in Learning Project (MILP) is the National Education Association's site-based, faculty-led school reform network of 26 schools. Four papers are included: 1) "The Literature on Teacher Utilization of Research: Implications for the School Reform Movement," by Douglas Fleming, provides a review of literature, indicates areas for researchers to consider in light of school reform, and links research to the design and implementation of MILP; 2) "Empowering Teachers Through Knowledge," by Sharon Castle, describes MILP, discusses the role of knowlege utilization in site-based, faculty-led school reform, and presents the methodolody used to investigate knowlege utilization in MILP schools; 3) "Obstacles to Teacher Use of the Knowledge Base for School Reform," by Gary Rackcliffe, presents results of the study and conclusions concerning the obstacles experienced in MILP schools; 4) "Facilitating Application of the Knowledge Base to School Reform Priorities," by Nel Ward, presents results of the study and conclusions concerning factors facilitating knowledge utilization and potential solutions to the obstacles.

The Literature on Teacher Utilization of Research: Implications for the School Reform Movement

Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, Louisiana. April 4-8, 1988.

Douglas S. Fleming
The Regional Laboratory For Educational Improvement
of the Northeast and Islands
Andover, Massachusetts
April 8, 1988

Introduction

The purpose of this paper is three-fold:

(1) to provide an overview of teacher utilization of knowledge as reviewed by the literature,

(2) to indicate areas of that literature for researchers to consider in light of school reform, and

(3) to link areas of needed research with the design and implementation of the NEA Mastery In Learning Project.

The overview of the literature on teacher utilization of research is based on a review of research syntheses and abstracts, including 82 ERIC abstracts provided by Dr. Jane Hange, Director of the Classroom Instruction Program of the Appalachia Educational Laboratory. While the central descriptor used in database searches was Knowledge-Research Utilization, secondary descriptors cross referenced included: Adult Education, Clearinghouses, Databases, Educational Research, Educational Resources, Educational Innovation, Information Dissemination, Educational Researchers, Information Services, Information Utilization, Instructional Improvement, Program Design, Research Utilization, Selective Dissemination of Information, Staff Development, Synthesis, Teacher Attitude, Teacher Education Programs, Teacher Improvement, Theory-Practice Relationship, and Teacher Researchers.

Pat L. Cox, Staff Associate for Policy, The Regional Laboratory for Educational Improvement of the Northeast and Islands, shared data from an independent study of information use prepared for a major information provider organization. Richard Sawyer, The NEA Mastery in Learning Project, Instruction and Professional Development division, National Education Association, supplied preliminary outlines of several models of research-using school improvement programs. Sharon Castle, The NEA Mastery in Learning Project, Instruction and Professional Development division, National Education Association, provided existing syntheses documents on the teacher use of research.

The areas suggested for further research were drawn from several sources, including a study conducted by the Far West Laboratory for Educational Research and Development on the American Federation of Teachers' Educational Research and Dissemination program. Other ideas were confirmed by concepts outlined in **Continuing to Learn**, a guidebook for teacher development developed by Susan Loucks-Horsley and colleagues at the Regional Laboratory for Educational Improvement of the Northeast and Islands.

The implications that the review of the literature and the identification of areas for further research hold for the NEA Mastery in Learning project appear to be consistent with findings from a multi-year, national study of dissemination efforts to support school improvement, conducted by the NETWORK, Inc., in Andover, Massachusetts.

An Overview of the Literature on Teacher Utilization of Research

Defining teacher utilization of research

For the purpose of this paper, teacher utilization of research is defined as the application of educational research findings to enhance the professional performance of individual teachers or to increase the collective organizational productivity of schools and classrooms. Research findings hold implications for school governance and organization, district and building-level leadership, curriculum design and implementation, classroom instruction, teacher evaluation and supervision programs, and staff development practices.

Recent decades have produced a great deal of research about effective schools and effective instruction The research is represented by the work of Edmonds (1982), Gage (1978, 1986), Schulman (1986), Brophy and Good (1986), Rosenshine and Stephens (1986), and others. Proposals for school reform, as represented by The Holmes Group (1986) and Carnegie Task Force (1986) argue that this research represents a "knowledge base for teaching" that can "frame teacher education" and "inform teaching practice." (Schulman, 1987) However, this body of research has been embraced, translated, interpreted, applied, and evaluated in different ways. Classroom teachers might explore the research base as it applies to methods of lesson design, efficient use of classroom routines, managing student behaviors, establishing positive learning environments, and organizing and delivering content. School administrators might seek information about models and processes for school improvement, motivating and involving staff in renewal efforts, or data that establishes the effectiveness of one type of policy or procedure over another, or that illustrates the impact of specific administrator behaviors on teacher and pupil performance. Teacher educators might seek research that categorizes the knowledge base on schooling, social organizations, human learning, teaching, and schools as workplace cultures. State and national political leaders might seek research that informs long range policy development or supports legislation for higher teacher salaries or makes a case for one type of organization for supporting instruction. These specific examples are not intended to suggest that the roïe groups mentioned have narrow outlooks or needs, but that there is a prevalent expectation that research holds quick answers to practical problems.

Identifying problems associated with teacher utilization of research

Most educational research attempts to link theory with practice, although some educational researchers differ on their opinions about how useful educational research and theory development are to educational practice. (Eisner, 1984 and Baker, 1984) Among the problems identified with teacher utilization of research are:

1. Perceived limited utility or potential to improve practice. (Griffin, 1982)
In one study of teacher attitudes toward research, Waxman (1986) reported that 48% of the159 teachers surveyed agreed that educational research provided them with practical suggestions for improving instruction.

2. Negative past experience or perceptions of researchers as nuisance factors in schools. (Griffin, 1982) Teachers generally perceive researchers as "too far removed from the classroom, thus having little understanding of day-to day classroom activities." Moreover,

teachers are skeptical of research because they feel it "uses teachers and students as 'guinea pigs' for experiments." (Billups and Rauth, 1987)

3. Overdependency on quantifiable data and results. (Griffin, 1982) One analysis of an attempt to translate research on teaching into a practical form claimed that the product "reflects no sense of the values inherent in teaching and misses all the joy of teaching." (Macmillan and Pendlebury, 1985)

4. Amount of time required to identify, locate, comprehend, and evaluate information sources and research findings. In a study of information use by practicing educators, Cox and others (1985) observed that practitioners preferred to let intermediaries handle the early stages of information retrieval, entering the process themselves closer to the end of the sequence. The study noted that the educators studied "preferred to receive presorted lists of references, or packets of articles and documents in response to phone or mail requests, rather than to spend time seeking out and compiling these themselves." Previous studies of information use (Summers, Matheson, and Conry, 1983) corroborate lack of time as a considerable barrier for educators.

5. Information overload. Sawyer (1987) reported practitioners as claiming that they were getting "too much information" that was "hard to sort" and that had "unclear organization" (i.e., no table of contents).

6. Patterns of organization and communication in the workplace. Lortie (1975) observed that teachers focus on the short term and place emphasis on "having a successful day." Teacher's schedules and responsibilities, he said, preclude much dialogue between colleagues, and at the end of the day, they are tired. Because of the generally restricted nature of staff communications, it does not follow that that good ideas developed by a small group of teachers will spread throughout the school.(Crandall and others, 1986)

7. Lag between the time research is actually conducted, processed (i.e., summarized, reported, translated, reformatted, published, distributed, disseminated) and applied in schools. This gap between knowledge development and knowledge utilization was underscored by Locke (1985) who reported that "while teacher educators [in this case college professors] have access to the research literature on teaching and teacher preparation, it does not necessarily follow that use of such knowledge is a normal part of the program operation or curriculum."

8. Lack of skills in understanding and interpreting research. (Schiller and others, 1986) Brandt (1984) too, observe that teachers are less able to use results of relevant research as compared to members of other professions that rely on research and development to inform practice. In the Waxman (1986) study, 45% of the teachers who responded to a survey reported that undergraduate courses helped them to understand research studies. 37% of the teachers responding felt that their teacher education professors helped them to translate research into classroom applications. Cox and others (1985) identified the following patterns of "awareness of the information environment" among persons in schools:

- Administrators and non-teaching specialists were the most frequent and routine users of information, explicitly considering it to be "part of the job."
- Special education teachers were the most frequent and routine users of information among teachers not enrolled in graduate or other courses.
- Regular education teachers tended not to have routinized information seeking strategies. The most frequent use of information services was found among

teachers who were taking graduate and inservice courses, or who were part of local structures.(i.e., grade level teams, district-wide committee, teacher as researcher project)

9. The reactive, not reflective, orientation of educator's daily work (i.e., getting materials ready for class, interacting with students, grading homework. (Schiller and others, 1986) In a related point of view, Garrison and Macmillan (1987) observe that merely "confronting teachers' subjectively reasonable theories with objective non-theoretical facts will result in a set of very confusing, ineffective theories." Huberman (1983) identified the following forms of "classroom press" on teachers:

- immediacy and concreteness of numerous spontaneous interchanges.
- multidimensionality and simultaneity of operations: providing materials, presenting content, eliciting responses, assessing progress, attending to needs, controlling behavior.
- adaptation to ever-changing conditions (i.e., techniques that work with one student may fail with the next).
- personal involvement with students (meaningful interactions are precursors to academic learning).

10. Teacher perceptions that educational research is "inaccessible, irrelevant, and sometimes wrong." (Rauth, 1986) In one study, Hargreaves (1984) reported that junior high school teachers drew only on personal classroom experiences. This, he said, "...revealed not so much an unawareness of other perspectives but a shared cultural valuation of classroom experience to the exclusion of virtually all other kinds of experience." Research credibility is further weakened by teachers' discoveries that findings of various studies may actually contradict one another. (Billups and Rauth, 1987)

11. Lack of interest in reading as a mode of learning about educational research. (Sawyer, 1987) Billups and Rauth (1987) similarly report that "teachers find research reports of great length to be cumbersome and complicated by statistical data and research terminology they do not understand." Cox and others (1985) observed that "for teachers, course work provided an important context for the social processing of new information and that discussions often spilled over into school settings. Social processing and dissemination of information was also reported in the context of curriculum and policy committees and grade-level team meetings.

12. Teachers driving needs for concrete ideas and materials for direct application to student learning situations. The findings offer no recipes for direct application in the classroom.(Billups and Rauth, 1987) In their study of a Knowledge Development and Utilization (KDU) project in career development education, Miguel and Bhaerman (1987) noted that "practitioners seemed more interested in materials they can get into the hands of students than in background information " Cox and others (1985) noted that "where academics were concerned with problem construction, practicing educators were focused on problem solving... As a consequence, they were more inclined to welcome intermediaries in the process of finding information, and were more concerned with finding a few specific articles or documents ...than to engage with indexes and databases. Whether information was sought for course-related or work related purposes, it was almost invariably practice-oriented and often led to the implementation of new instructional techniques, curriculum, and policy in school settings."

13. Lack of focus. Sawyer (1987) reported that practitioners experienced difficulty in applying a knowledge base to the school context when there was a low level of whole faculty involvement or when there was not a clear idea of what should be worked on, or in what order or manner to proceed. In a review of a study of teacher development in a school where the highly educated and youthful staff appeared ready for significant change, the development effort "petered out because the teachers could not get beyond inconclusive discussions." (Crandall and others, 1986)

14. Misapplication of research. Billups and Rauth, (1987) write that "improper use of research in classrooms is more prevalent than is comfortable to imagine" and attribute faulty implementation of research (via inadequate preparation of teachers, inaccurate reporting of findings, inappropriate use of information, insufficient funding, or mandates that force teachers to meet unrealistic timelines and produce irrelevant reports.) as reasons why research-based programs fail. Meyers (1986) discusses four examples of how potentially useful research on teaching was misapplied in practice: direct instruction, time on task, the Chicago Mastery Learning Program, and sequence of reading skills.

Highlighting conditions that facilitate teacher utilization of research

While there are a number of conditions that mitigate against effective teacher utilization of research to improve practice, there are also some practices that enhance or promote the use of educational research. These include:

1. Acknowledging the attributes of information more likely to be selected than rejected. Rogers and Shoemaker (1971), in their classic work on the communications of innovations, suggest that new information (i.e., research findings) will be more likely to be considered if:

   a. There is a clear relative advantage to using it.
   b. The information has compatibility with the existing values, past experiences, and perceived needs of the potential users.
   c. The complexity of the information presented is not considered an impediment to understanding and application.
   d. The information appears to have trialability; it can be experimented with on a limited basis
   e. Both the process of the information use and its outcome have perceived observability; the results can be actually demonstrated or seen firsthand.

2. Acknowledging the attributes of information users identified as more likely to use educational research. Rogers and Shoemaker (1971) suggested an arbitrary classification system that helped knowledge producers look at knowledge users on a continuum of normal distribution (innovators, early adopters, early majority, late majority, and laggards.) Their studies noted the following characteristics among the "relatively earlier adopters":

   - more education
   - higher social status
   - greater upward social mobility
   - greater ability to deal with abstractions
   - greater rationality
   - greater empathy
   - less dogmatic
   - more favorable attitudes toward change, risk, and science
   - more social participation

- higher achievement motivation
- higher aspirations for their children
- more contact with persons associated with changes
- more exposure to mass media

3. Acknowledging the nature of information dissemination and use in social systems. Again, Rogers and Shoemaker (1971) provide a framework for understanding the flow of new information. They describe a series of subprocesses from (1) stimulation of interest, (2) initiation of a new idea, (3) legitimation of the idea by powerholders, (4) making the decision to act, and (5) taking action. Within this configuration, they write, each subprocess may be spearheaded by different individuals. For example:

- The stimulus may be provided by persons more cosmopolitan than members of the system. These are persons with easier access to information and more ability to perceive the needs and problems of the system. They are generally not members of the system.
- The initiators are noted for their favorable attitudes toward change and their intimate knowledge of the system. They may or may not be members of the system.
- Legitimizers are the high-status power holders of the system who actually sanction the change. Non-members lack the seniority, status, social power, and credibility to sanction ideas in the system.
- Acceptance of the new information, and user satisfaction with the resulting action steps, is directly linked to the degree to which the members of the system participate in the decision-making process.

4. Packaging and formatting of research. Cox and others (1985) discovered that teachers typically obtained research information in the form of print-outs, bibliographies, resource lists, pre-selected articles and documents, or individualized packets of information.

5. Understanding the constellation of information service providers. Cox and others (1985) discovered that although practicing educators were not always aware of it, much of the information they obtained was located through ERIC.

6. Recognizing the influence of administrators and non-teaching specialists. Cox and others (1985) identified the role these groups play in disseminating research through workshops, training, meetings, and informal, personal interactions with colleagues and staff.

7. Improving access to information available within the organization. Huberman (1983) acknowledged the positive power of quick turn around, rapid payoff, continuity, and availability in information services. Sawyer (1987) and others do not deny the implications of increased costs—for both services and products (including photocopying costs).

8. Responding to legislated mandates or requirements. Cox and others (1985) maintain that information use may be driven by demands from outside the client organization (i.e., PL 94-142) for regular updating.

9. Creating incentives and rewards for information seeking and use. These mechanisms are typically set by the top administrator of the organization. Cox and others (1985) observed that "because the expectation of information seeking is not well embedded in school districts, those expectations may shift drastically with change in leadership."

10. Establishing structures that promote information seeking and use. Strategies include bringing people together to deliberate on information, where assessment and social processing may result in decisions being made and information may be applied to circumstances at hand, providing or requiring graduate courses, scheduling in-service programs, assigning investigative roles to subcommittees, grade-level teams, departments, or other small groups, arranging for substitute coverage to allow study teams to read, conduct library searches, or visit other programs, distributing or routing targeted materials via faculty mailboxes, creating a systematic plan for reading, discussion, decision, and reporting in faculty meetings. (Cox and others, 1985, Sawyer, 1987a)

11. Increasing the technological capacity of the organization. Cox and others (1985) found that "while routine seekers of information valued highly the services and expertise of information service providers who did online searches and prepared materials for them...these clients did not feel that there would be any advantages in performing such searches themselves." On the other hand, clients whose information use was more occasional felt that they could "do a better job of finding the information that they needed if they could perform the searches themselves." The proliferation of electronic bulletin boards, with easy to use message and file transfer areas, represents another level of technological access to educational research. Organizations and individuals with personal computers, modems, and inexpensive telecommunication software can access preselected and reformatted research reports without conducting database searches., or they can access traditional educational databases to execute more complex searches.

Scanning some models of research utilizing school improvement programs

Involving teachers in the use of research knowledge for the purpose of improving their craft has been investigated by a number of researchers. Results of these investigations generally show that teachers will engage with educational research information or studies only when a structured plan including instruction in "breaking" the research code and opportunity to implement research findings in their classrooms is provided.(Sawyer, 1987b) Several models for teacher use of research are summarized below.

Support for Instructional Development Model. (Red and Shainline, 1987)

Following an initial seminar held on teacher-chosen topics, teachers maintain journals regarding the applicability of research and theory. Subsequent seminars are held for group discussion of the findings. Underlying assumptions in this model in this model are that:

1. change is a process
2. conflict is necessary
3. beliefs are changeable
4. individual interpretation

Teacher-Run Study Groups Model. (Berliner, in preparation)

Teachers meet to discuss the format and purposes of research reports, clarify terminology, identify the knowledge sought, and acknowledge design types and data analysis procedures used in the studies. Underlying assumptions of this model are that teachers who can understand and utilize educational research:

1. may better influence local policy
2. derive enhanced professional status
3. are better prepared for graduate study
4. grow through intellectual challenged

Consumer-Validation Model. (Eaker and Huffman, 1986)

Teachers encounter educational research through reading, formal presentations, or media-based instruction. Teachers then develop individual or joint plans for applying the research, implement their plans, take part in follow-up discussions, and choose to adopt, modify, or reject the trial practice based on experience. Underlying assumptions of this model are that through this kind of engagement with educational research, teachers will:

1. attain increased familiarity with research limitations, methods, and sources
2. attempt applications of practices and pilot programs
3. engage in more critical analysis and self-reflection
4. employ evaluation criteria in making decisions

Changing Teacher Practices Study. (Griffin and others, 1984)

Designed and implemented as a way to introduce research on leadership and teaching into a school district, the CTP program examined two bodies of research, resulting in a set of teaching behaviors (Barnes, 1981) and a set of Staff development strategies. (Edwards, 1981) The program is characterized by teacher interaction on professional issues, adaptation of ideas to fit the school setting, opportunities for teacher reflection, and a focused and precise knowledge base.Underlying assumptions of this model include acknowledgement that:

1. Change is inevitable
2. Schools are complex social institutions in which change does not occur easily
3. The function of schooling is to produce outcomes in students.
4. Teacher practice is directly related to student outcomes.
5. A desired change in student outcomes can be facilitated by an appropriate change in teacher practice.

Gender Expectations and Student Achievement. (Grayson, 1985)

Teachers encounter research findings on gender discrimination in sessions spread out over a five month period. Teachers are prepared to conduct objective peer observation/feedback conferences on specific teacher instructional behaviors. Between each session, participating teachers pair up to observe each other demonstrate equitable classroom management and instruction. Underlying assumptions of this model include:

1. Teachers can use research to inform practice
2. Practices must be modeled and demonstrated to reinforce theory
3. Peers can assist each other by providing objective feedback on the performance frequency of a limited number classroom variables at one time.
4. Individual growth requires intervals of practice between new learnings

Effective Use of Time. (Stallings, 1981)

Several variables found to be related to higher reading scores are used to create an observational checklist for teachers. Observations are used to develop an initial profile for each participant. A series of small-group workshops then focus on techniques for changing specific behaviors. Key features of this intervention include:

1. Personal feedback is given to teachers
2. Research findings are translated into classroom activities
3. Teachers confront their own behaviors
4. Workshops focus on specific techniques and subject matter related to student outcomes
5. Small groups provide for supportive, informal arrangements

Collegiality and Experimentation. (Little, 1981)

In a year long study of a group of elementary and junior high schools, Judith Warren Little describes four critical practices necessary for building supportive social arrangements as well as technical knowledge for encouraging use of educational research. These include:

1. Talking about practice and developing a shared language about substance, process, and interactions
2. Planning, designing, researching, evaluating, and preparing materials together.
3. Observing each other working
4. Teaching each other the process of teaching.

Educational Research and Dissemination Program. (Biles and others, 1983)

In this model for transforming research for teacher use, "teacher research linkers" are selected at building sites. The research is summarized, the teacher research linkers engage in activities that expand on the research and relate the research to classroom practice, and return to their school sites prepared to assist colleagues in understanding and applying the research on effective classroom management, direct instruction, or interactive teaching. Key features of this program include:

1. Development of an "on-site" resource person familiar with the research on classroom management and effective teaching strategies.
2. Encouraging role flexibility, allowing for teachers and administrators to be instructors, models, supporters
3. Focusing on a theme and allowing time enough to establish new patterns
4. Establishing new roles for teachers

Interactive Research and Development. (Tikunuff, Ward, and Griffin, 1975) as reported in Lieberman and Miller (1984).

A team of teachers, a developer, and a researcher worked together to formulate an educational problem. They determined what evidence to collect, and identified a potential solution to the problem. Teachers maintained logs, and an ethnographer focused on the sequence of events and interactions. Later, the teachers involved in the research and development project provided inservice education for the district. Key features of this model are:

1. Breaking up the isolation of teachers from one another
2. Recognizing and respecting the classroom and school as legitimate contexts for research.
3. Putting teachers, researchers, and developers in a setting where all can learn
4. Establishing new roles for teachers
5. Reinforcing the research base behind the problem and comprehending the complexity of making changes in schools.

Determining the value of teacher utilization of research

Contemporary society is often described as being in the "information age," where organizations and individuals must increasingly learn to acquire, assess, and act upon information. More and more emphasis is placed on the skills and roles of teachers as knowledge consumers, knowledge producers, and knowledge linkers. It makes sense, in a profession that promotes the value of life-long learning and critical thinking, to initiate, improve,and expand our capacities for applying, developing, translating information in all forms—including the results of educational research. The primary objective of research-utilizing programs is to increase "access to new knowledge and understanding in ways that will assist teachers in taking possession of that knowledge and to work out its implications and consequences for their own settings and contexts. (Fenstermacher, 1987)

Research-utilizing school improvement programs appear to have common assumptions (Griffin and Barnes, 1986):

a. research findings can be used to provide a systematic focus to teaching and schooling and thereby serve as improvement tools.

b. research findings can be transmitted to school practitioners if the findings are viewed as legitimate and useful guides to practice.

c. research findings can be interpreted positively by school-based administrators and teachers if careful attention is given to the style and manner of delivery, with particular attention to situation-specific issues.

Researchers have expressed dissatisfaction with their own ability to communicate with teachers. (Gross, 1986) Sometimes they show dismay at teachers desire for instant solutions, question the defensibility of their own tactics for reporting research (i.e., disclaimers on the certainty of conclusions reached, persuading vs. reporting) or disdain for teacher preparation programs that do not provide orientation toward research use. They may claim, also, that feedback from teachers about the classroom use of research results is rare. (Billups and Rauth, 1987) Many, like Whitney (1987) agree that "active involvement of both teachers and researchers is necessary of research is to solve school problems."

Perhaps the principal contribution of teacher utilization of research is the enrichment of what teachers know about teaching and what teaching entails. Clark and Lampert, (1985) have affirmed that "For both novices and experienced teachers, the goals of applying research are to promote an understanding of teaching as a design (decision-making) profession and to empower teachers toward self-directed professional efforts."

Areas for Researchers to Consider in Light of School Reform

There are those who claim that educational research may offer too little, too late for leaders of school reform. "If educational research is to play a significant role in furthering the reform movement, its image as being irrelevant to policymakers and the public must be changed" stated the Office of Educational Research and Improvement in Report on Educational Research. (May 6, 1987)

While researchers "cut down on studies that some regard as esoteric and irrelevant," and attempt to be "responsive to the needs of policymakers and educators," there is generally no consensus on what topics should be the focus for research in the next few years or whether policymakers can use the results in their deliberations over school improvement.

Secretary of Education William J. Bennett argues that research results need to be "more accessible, more germane, and more pertinent to the debates [about educational reform] going on around the country." Representatives from the American Educational Research Association and several education organizations suggest that future research focus on at-risk children, restructuring schools and teaching, and the development of higher order thinking skills. The changes recommended by many of the reports on school reform, including A Nation Prepared: Teachers for the 21st Century, reflect a need for further research on curriculum development, teacher incentives and assessment, equity and excellence, school organization, and the knowledge base of the profession. Other areas for potential research, in light of state reform initiatives (Walsh, 1985) extend to determining the impact of increased graduation requirements, student testing programs, stronger discipline policies, teacher recruitment practices, and staff development programs on student achievement and school completion

Some specific questions can be raised about the efficiency, effectiveness, and efficacy of research-using school-based reform efforts. Areas for researchers to consider, in light of a general press for more building-based management practices, involvement and accountability on the part of teachers in decision-making, and use of the knowledge base to improve instruction, include:

1. The impact of research-using programs on existing roles and relationships within the targeted district or school building. Teachers who become involved in school improvement efforts based on utilization of research may experience shifts in how they are perceived by peer group members. They may no longer be perceived as "staff developer", "mentor", "teacher-leader", "resource person", or "colleague." Indeed, they may begin to question their own roles or status as they experience new insights and develop new capacities. (Gee and Marshall, 1985)

2. Attention to developing long-term support in the building or district. Researchers studying the American Federation of Teachers' ER&D program suggested that a more "proactive role in providing principals with earlier access to materials and involvement might have led to greater acceptance and support." (Gee and Marshall, 1985)

3. The relationships between union and district as enabling condition or constraint to school reform initiatives. Perceived "exclusive ownership" of a research-using program by any one group may develop into a stumbling block to widespread acceptance and adequate support. (Gee and Marshall, 1985) How have union representatives and other district role

groups developed shared responsibilities for project outcomes in research-using school improvement projects?

4. The struggle for voice in leadership and professionalism. Similar to the struggle between a union-sponsored research-using program and existing role groups in the larger district organization, this issue focuses on who has greater say over staff development, district goal setting, and teacher professionalism. (Gee and Marshall, 1985) What mechanisms have been devised so that all groups can join forces and work toward common goals?

5. Effective training of classroom teachers to serve as turnkey disseminators of research. Teachers who have worked with children in classroom settings and under classroom conditions may need to acquire and apply new skills in order to work effectively with adults and to understand the complexities of introducing changes in organizations. (Gee and Marshall, 1985) How have effective turnkey trainers been identified and prepared?

6. The need for continuous development and refinement of research translations. An analysis of the ER&D study concluded that additional pieces of research on specific topics, including more practical, useable strategies that can be directly implemented in classrooms, was needed (Gee and Marshall, 1985) A study to determine the most effective formats, lengths, organizing schema, and reporting styles preferred by teachers across several types of research-using school improvement programs may yield useful information to knowledge producers and knowledge linkers.

7. Studying the impact of expanded linkages on research and development use. Do linkages between a local district school improvement program based on research use and other third party assistors (i.e., college and university partnerships, regional educational laboratory programs, independent consultants) provide structures where teachers can make connections outside of schools that support both the continued use of research to improve teaching and the sense of professional status by teachers? (Gee and Marshall, 1985)

8. Configuring the support necessary to meet participant needs. Accumulated research (Crandall and others, 1986) suggests that educators who are called upon to do something new have affective, cognitive, and skill-related needs. In addition to research information, support must be provided to those responsible for implementing and leading school improvement efforts. Training, demonstration, and coaching represent three levels of assistance.that can be provided by district personnel or third party helpers.

In one set of studies, Bauchner and others (1982) found that "local facilitators" contributed more to the success of school improvement efforts than any other role group. A study of configurations for support of research use by contemporary, reform-based programs may corroborate this concept.

Implications for the Design and Development of the NEA Mastery in Learning Program

In A Place Called School, John Goodlad (1983) depicted a dismal scene for the application of educational research. In the schools studied by Goodlad and his associates, students spent most of their time listening to teacher lectures and learning facts rather than practicing higher level thinking skills. The curriculum tended to be narrowly defined by the traditional three R's. Students were primarily taught in large groups, in relatively standardized ways, using textbooks, workbooks and ditto sheets. Teachers did not tend to work together to solve problems pertaining to their own schools, nor did the daily press of the school schedule or their inservice programs encourage instructional collaboration.

If the NEA Mastery In Learning Program is to achieve its goal of enabling faculty and students to acquire "facility and confidence, judgement and strength, and command of knowledge and skills", it must continue to look inward at its own practices, collecting and using feedback from its pilot schools, site consultants, and support systems. It must look outward to the successful practices documented in the research and development literature And it must look squarely on the hits, strikes, and near misses of the organizations and individuals that it is nurturing. Mastery In Learning schools are important sources of valuable information for ways to improve the linkage between what is the knowledge base of the profession and what is the actual day to day practice in our nation's schools.

A list of implications, based on a review of the literature on what is known about teacher use of research, consideration of research-using models for school improvement, and the language of current school reform proposals, includes:

1. Developing and maintaining a tightly coordinated, project monitoring, and policy-shaping unit at the national level. One of the the functions of the central coordination/management unit would be to compare and contrast activities, practices and progress across sites. The findings of the internal monitoring process could be shared at national or regional meetings of project sites. Selected school sites could be used to model or demonstrate desirable practices in research utilization. Another function of this unit could be to distinguish features associated with exemplary on-line search results, high-impact, high-use information formats, and effective patterns of third-party information assistance.

2. Stepping up, where appropriate, the levels of in-person assistance to project sites. The expanded configurations may include representatives from higher education, process consultants, content consultants, local collaboratives, and regional or state resource agencies. As school site teams begin to use and evaluate the assistance from these different external sources, they are more likely to influence and be influenced by the spread, exchange, choice, and implementation of educational research. In addition, interorganizational arrangements can be promoted that would allow the external sources to share access to databases and information systems, creating a stronger network of resource support to the pilot schools.

3. Increasing access to alternative concepts and approaches, including validated practices and locally developed projects, through user-oriented materials and process guidelines. These research-based or research-using materials should be linked with responsive, in person assistance to orient participants in the use of the materials and guidelines. Linking external sources of assistance with the internal actors may require more guidelines in how

to help and how to be helped. Pilot schools seeking information may need assistance in framing a topic, distinguishing dimensions that are relevant from those that are not, and learning to map the constellation of information systems available to them, including ERIC and other databases, educational clearinghouses, research centers, regional laboratories, professional associations, the National Diffusion Network program, and other networks for school-based school reform. Helping school site teams to become more capable consumers of research.is a necessary follow-through to providing well-written and well-documented materials

4. Strengthening the core network of support and responsive information. One strategy to investigate is the use of an electronic bulletin board operated by the Mastery In Learning Project, using the microcomputer technology available in most schools to exchange messages between Mastery In Learning Headquarters staff and other project sites. Through this medium, local sites could "download" files of information to their computer systems for later printout. The electronic bulletin board would give them quicker access to sources of information they seek regarding a particular problem or question, without having to master the technology of how to do database searches. In addition to being easy to use, the system would be running twenty-four hours a day, and available when they have the time to use it. Another "low-tech" alternative to online searching is to promote the use of the cumulative RIE and CIJE indexes on microfiche , allowing readers to search descriptors and identifiers across the entire ERIC database at once. Orientation and training in information systems in general can make pilot school librarians more capable of linking users with relevant material.

5. Increasing involvement, participation, and discussion by key building level and district-wide administrators to assure early buy-in and support for project goals and objectives. Enlightened and forceful local leadership can support the Mastery in Learning projects with resources and assure that significant practice changes are sustained and have longer lasting trial periods. Because school administrators are more likely to have access to educational research via meetings, conferences, and educational journals, their routine involvement in project activity may also increase the norm of research use within the school site team. Other school or district staff whose role already establishes them as knowledge users can serve as models and facilitators for others.

6. Increasing awareness of the critical implementation skills necessary to bring about change in complex social organizations like schools. New practices so often live or die by the amount of assistance they receive after a decision has been reached or an "action plan" has been written. In too many cases, educational practices are expected to fall into place after some brief, initial training. Successful projects demonstrate more diverse and sustained assistance through programs that provide reassurance, support, expansion of the user's capacity to solve problems, monitor and evaluate their own progress, and achieve levels of interdependence necessary to achieve technical mastery and use of the new practices. Structures and processes that build opportunities for knowledge use should be continually promoted in pilot schools, using grade or departmental teaching teams or special committees set up to deal with specific issues. Where continuing education and professional development activities are provided, the activities should be structured to have direct application to classroom or administrative work.

From the standpoint of information use, outreach needs to occur on a continuous basis and in redundant forms, through print products, presentations at inservice events, involvement in staff development councils, and action research projects.

7. Increasing attention on the relationship of the Mastery In Learning Project to the district site as a whole. Successful and lasting placement in the organizational fabric of the

district may require increased communication about goals and objectives of the project and the pathways selected to achieve them. The stepped-up communication between school site team members and other committees, task forces, or teams in the district may be necessary to combat suspiciousness, skepticism, hostility, defensiveness, and a feeling of being "left out." Trust, openness, and commitment can be difficult to build within the team itself; a harder task may be to expand the boundaries of participation in Mastery in Learning goals.

8. Increasing emphasis on strategic planning for continuation in the host district. Some concrete steps that local team members can begin to take to ensure continuation include incorporating project activities in the school curricula, introducing planning and meeting practices in the routine operating procedures of the building, establishing line items for equipment, supplies, and personnel in the annual budget and staffing cycles, and the elimination or co-opting of competing practices. Doing this generally requires the support of the central office administrator closest to the new practice. At the same time, another component of a strategy for continuation is the avoidance of person-dependence. The success of local project activities should not be linked to the efforts of only one person. In times of budget cuts, referendums, or staff turnover, a team that has practiced deliberate interdependence and exchange of roles may develop the depth to sustain setbacks.

These implications have been derived from the literature on teacher utilization of research, what is known about about research-using programs for school improvement, and the expectations of the reform movement. They are not intended to be criticisms of the NEA Mastery In Learning Project, its staff, or school site practices. They are intended, however, to suggest additional ways that project schools and the NEA Mastery In Learning Program can work together to make research more meaningful to teachers, and promote efforts toward school improvement.

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EMPOWERING TEACHERS THROUGH KNOWLEDGE

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A paper presented as part of the symposium, "Teacher Empowerment through Knowledge: Linking Research and Practice for School Reform," at the annual meeting of the American Educational Research Association in New Orleans, Louisiana.

April 9, 1988

Abstract

The purpose is to investigate those factors that obstruct the knowledge utilization process and those factors that facilitate the knowledge utilization process in Mastery in Learning Project schools. The Mastery in Learning Project (MILP) is the National Education Association's (NEA) site-based school reform initiative. One of the assumptions underlying the Project is that every decision about learning and instruction that can be made by a local school faculty must be made by that faculty; but they must make informed decisions. School faculties are empowered by using the knowledge base to inform decision-making, to balance reason and passion, and to support the decisions that are made in relation to the improvement priorities they have chosen. Data were collected from 26 of the 27 MILP schools. Three sources of data were used: 1) telephone interviews; 2) year-end reports; and 3) Project documentation. The data were coded by obstacles and facilitators. The results indicated that obstacles include: lack of reading, too much to read and synthesize, and lack of applicability. Factors that facilitate us of the knowledge base include: availability, dissemination methods, discovering roots of the obstacles; release time; outside consultants; realization of the value of research and evidence of the benefits; practical applications; extrinsic and intrinsic rewards; and promotion of a collegial atmosphere.

EMPOWERING TEACHERS THROUGH KNOWLEDGE

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NEA/Mastery In Learning Project

Introduction

Teachers and researchers often have different agendas, concerns, language, values, and methods (Sealey, undated). Although teacher-researcher collaboration could eventually produce greater benefits for students by facilitating the research utilization process, various obstacles have seriously hindered the transfer and application of knowledge from researcher to teacher and vice versa.

Applying original research to classrooms is a complex process. It is a task for which teachers often have too little time, access, and understanding (Berliner, undated) and too few models that link transfer and application of research to contextual factors affecting the change process. To empower teachers to apply a constantly-growing knowledge base to their practice (Shulman, 1987) requires contextually-sensitive research utilization models.

The Mastery in Learning Project's school improvement process is based on informed teacher decision-making. The Project provides ways to link research and practice for school faculties engaged in site-specific, faculty-led school reform. The Project builds on the principle that every decision about learning and instruction that CAN be made by a

local school faculty, SHOULD be made by that faculty (Goodlad, 1984, see in particular, pp. 272-279; also see Bentzen, 1974; Bentzen, Goodlad, and others, 1968; and Sarason, 1971). Such decisions, if informed by knowledge of research findings and good practice, will be more effectively implemented because teachers, administrators, and other staff will not only be committed to those decisions, but will be able to articulate the knowledge base underlying that commitment.

Project Description

The Mastery in Learning Project (MILP) is the National Education Association's (NEA) site-based school reform initiative. The Project includes 27 elementary, middle, junior, and senior high school in rural, urban, and suburban communities of varying socio-economic composition. The student bodies reflect, in varying proportions, almost all the different racial and ethnic groups that make up our nation.

There is no single, patented formula for school improvement. Each individual school must be structured differently, based on its own particular students and community. There are, however, four essential assumptions--each critical to educational excellence--that guide the Project's approach to school renewal:

1) a school's curriculum must have content integrity and social significance;

2) a school community must hold high expectations for its students;

3) the central priorities of schooling--learning, teaching, curriculum--must guide all other educational decisions;

4) every decision about learning and instruction that can be made by a local school faculty must be made by that faculty.

Teachers know what individual students need to succeed better than decision-makers who are far removed from the classroom. To make quality decisions about learning, teachers need access to the latest research findings, not mandates from above. And when a school community makes its own decisions, these decisions will be effectively and enthusiastically implemented because they are owned by the community.

Working with Project staff and using planning instruments designed by the Project, the faculty at each school identifies improvement priorities and prepares a specific plan for implementing change. There are four steps to the work of each school:

Step 1: School profile. To establish a benchmark, a description of the school at the beginning of the Project is created. Students, parents, teachers, school administrators, and district officials provide the data.

Step 2: Faculty Inventory. Through a series of group and individual activities, the school faculty establishes priorities for teaching, learning, curriculum, and school climate. This process helps teachers identify their similarities and differences, their priorities and aspirations.

Step 3: Empowerment. Using TRaK (TEAching Resources and Knowledge), the Project's data base, school staff explore improvement options by examining research-based approaches that address the priorities established in Step 2. All of our schools are currently engaged in this step. The MILP office provides basic research packets on designated priorities. A site-based consultant assists in facilitating, coordinating and enriching use of the research. Designated priorities include short-term, easy-to-accomplish action programs and highly complex, long-terms efforts. All are designed to help faculties gain the skills, knowledge, and attitudes necessary to act on Step 4.

Step 4: Restructuring of Comprehensive Change. The faculty prepares, evaluates, refines, and implements a wholistic school improvement plan based on current knowledge about learning, teaching, and curriculum as applied to the context of that particular school.

The Project will help each faculty develop the school that best serves their students and community. The Project will also help educational policy makers understand the wisdom of investing more authority over teaching, learning, and curriculum in school faculties and their communities.

Role of the Knowledge Base

Use of the term empowerment in the Mastery in Learning Project implies several things. First is the aforementioned assumption that many decisions are best made locally rather than mandated from afar; that is, decisions must fit the particular contextual needs and conditions of the school community. Secondly, the best decision is a well-informed one. Having permission and opportunity to make decisions carries responsibility for making the best possible decisions. Empowerment implies informed decision-making for 3 reasons: 1) information empowers teachers to confront their own practice; 2) information empowers teachers to balance reason and passion; 3) information empowers teachers to develop a solid foundation for the decisions that are made which can then be shared and used to support or argue for their decisions. Thirdly, empowerment implies a professional culture of inquiry in which colleagues define, study, design, and implement needed changes in their particular school community.

Thus, the knowledge base serves to inform decision-making, to balance reason and passion, and to support the decisions that are made. The process of applying the knowledge base to faculty-generated improvements goals motivates change and builds a culture of inquiry and collegiality. This forms the definition--both product and process--of empowerment through the knowledge base in the Mastery in Learning Project.

The knowledge base on teaching comes from a variety of information sources. Shulman (1987) enumerates four sources: 1) scholarship in

content disciplines; 2) materials and settings of the institution; 3) research on schooling, learning, teaching, and the social and cultural factors that affect teaching; and 4) the wisdom of practice. We expect our faculties to draw on each of these sources of information without overreliance on any one source.

Acquisition of knowledge base information in MILP schools has occurred through several avenues: the MILP central office, site consultants, research and development labs, networking between Project schools, site-based action research, and the knowledge and experience of the participants themselves.

Statement of the Problem

Once these expections and assumptions were communicated to the Project faculties and basic information packets distributed, feedback began reaching the central office relative to using the information. The assumptions were not problematic; the process of how to study and apply the information was problematic. As faculties worked to formulate a workable process, we decided to investigate those factors that obstructed the knowledge utilization process and those factors that facilitated the process in our Project schools.

Methodology

Data were collected from 26 Project schools in the spring of 1987. Six pilot schools had completed their second year of the Project; the other 20 schools had completed their first year. Three sources of data were

used: 1) telephone interviews; 2) year-end reports; and 3) Project documentation. The telephone interviews were conducted by three Project research associates. A 13-item interview protocol was developed based on feedback previously received from the schools. Responses were written on the interview protocol form. The interviewees included 17 site-based consultants and 7 teachers covering 22 of the 26 schools. The year-end reports included 10 questions 2 of which related specifically to use of the knowledge base. The reports were written by the site-consultant on the questionnaire and submitted to the Project office. Year-end reports included 14 schools at the time of data analysis. The Project documentation process involves a teacher-documentor conducting on-site, tape-recorded interviews with 6 Project participants. Summaries of the interviews by question are sent to the Project office. The interview protocols include 2 questions related specifically to use of the knowledge base. (More information on the MILP documentation process is available upon request.) At the time of the data analysis, documentation was available from 8 Project schools. The total number of schools represented in one or more data sources totalled 25 out of 26 schools.

The data were read and reread for patterns and recurring themes. Responses indicating obstacles and facilitators were coded. The coded responses under obstacles and facilitators respectively were then organized into broad categories.

Results

The following were obstacles to using the knowledge base for teacher decision-making (the next two papers in the symposium present the results in detail):

- o lack of interest or motivation to read the research;
- o inappropriate amount of research, particularly too much research to read and synthesize;
- o characteristics of the material: lack of applicability and practicality; and too much ambiguity.

The following factors facilitated use of the knowledge base for teacher decision-making:

- o availability and accessibility of research;
- o methods for dissemination: effective sorting; small group discussion and reporting; presentation by a Project leader; inservice; circulation of abstracts; modelling;
- o discussion of aversion to reviewing research in order to discover the roots to the roadblocks;
- o release time designated for knowledge-base work;
- o use of an outside consultant from a university or Uniserve office;
- o realization of the value of using research (such as the necessity to support decisions that are made) and evidence of the benefits (such as acceptance of the decisions because of the support behind them);

- o practical linkages and applications of research to specific situation;
- o extrinsic rewards (such as inservice credit) and instrinsic rewards (such as perceived value)
- o collegial atmosphere.

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OBSTACLES TO TEACHER USE OF THE KNOWLEDGE BASE FOR SCHOOL REFORM

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Abstract

This paper is the report of a study of obstacles to the use of research by teachers as they make decisions about their schools as a part of the National Education Association's Mastery in Learning Project. As a part of this project, school staffs and the consultant working with them are sent packets of information on topics for which they have expressed an interest. During interviews with the project staff, representatives from 25 of the 26 participating schools discussed their faculty's use of these research packets. These comments were analyzed to find obstacles to the use of the material. The obstacles have been grouped into three categories; reading the research, amount of research, and characteristics of the material.

OBSTACLES TO TEACHER USE OF THE KNOWLEDGE BASE FOR SCHOOL REFORM

This paper is the report of a study of obstacles to the use of research by teachers. The participants are all involved in the National Education Associations's Mastery in Learning Project, a school-based, faculty-led school renewal process that is being used in 27 sites across the country. These 27 school buildings and their staffs and students were selected to represent most of the school structures that are found in this country. The project emphasizes teachers making decisions based on the results of thoughtful consideration of options and the research that supports those options. As an aid to that, the project prepares packets of research articles devoted to topics that are of interest to particular schools. In addition to scholarly research reports and reviews published in journals that we all recognize as research oriented, these packets include articles from more popular publications such as the *Phi Delta Kappan*, *Educational Leadership*, and *Instructor*. They also include unpublished material, bibliographies, ERIC search results, workshop announcements, and a variety of other "stuff." This is all potentially useful information, and for the sake of simplicity I will refer to it all as "research."

My goal in doing this study was to uncover obstacles to the use of research by classroom teachers and other building-level personnel. As we look toward the future of schools most of us want to see increasing teacher participation in the decision-making process for those decisions that have an impact on their classrooms. While much of the information that is used in that decision-making process lies within the classroom and the social situations that are created there, an important body of information lies outside the classroom in what we generally refer to as the "research literature." In most cases this research-based knowledge is currently being imposed on teachers by people from outside their classroom or building. A number of us believe this information would be better used if the impetus for use came from the classroom teacher. In our project, school staffs have identified topics of concern and have received information about those topics. In many cases the teachers read and utilized the information with a minimum of problems. But, there were some cases in which the process did not go as smoothly. I hope that if we can clearly identify the roadblocks to the utilization of this research knowledge we can develop techniques or processes that will help the groups experiencing difficulties, and, at the same time, improve the work of the more successful groups.

Let me say at the outset that this report is not meant to be critical of teachers or researchers or other groups that make up the educational enterprise. Very little of what I found could be considered to be the "fault" of teachers or of researchers. These problems are most often related to the structures of the institutions within which we work and the expectations that we have developed about the nature of our work and the people with whom we communicate. My goal was to find and report the roadblocks that have kept some teachers from taking full advantage of some of the resources that are available to them. As these obstacles are exposed we can all work together to do what is needed to remove them.

Method

The data for this paper are 22 interviews done with Mastery in Learning Project site-based consultants and Steering Committee chairs in the spring of 1987. Fifteen of the respondents were project consultants, one of whom works in two project schools, and seven were Steering Committee chairs. Twenty-one schools are represented out of the 26 that were in the project at that time. For most of these schools it was the end of their first year in the project, but four of them were in the original group of six pilot schools, and were in their second year. These were structured interviews conducted during phone calls between the respondent and the research assistants at the project office. The research assistants took notes during the interviews, including quotes where possible, and these notes made up the bulk of the data. They were supplemented by information taken from the year-end reports of four more schools bringing the total number of schools represented to 25 out of 26.

For each of the interviews there was a questionnaire on which the research assistant recorded the responses. The first step in my analysis was to collect all of the answers for each of the questions so the responses for each question could be reviewed to find patterns or reoccurring themes. At the same time I recorded questions or points of interest that the material raised, and then went back through the material searching for responses to those.

As a result of this pattern of repeated reading of the interview responses, I found constraints on the use of research that can be divided into three categories. First, those that dealt with the reading of the research. Second, those that dealt generally with the amount of research. Finally, the category that I think is most problematic, obstacles that are related to characteristics of the material itself. These categories are, of course, arbitrary, and there is a great deal of overlap between them, but they provide a framework within which to view these obstacles to research utilization.

I feel it is important to emphasize that these constraints were gleaned from a generally positive report of successful

research utilization. Most schools were reporting procedures that had been effective in getting teachers to make use of the research, and a number of times I felt as though I was trying to snatch defeat from the jaws of victory. But those successes are the subject of another report, and I will focus on the problems.

Reading the research

The first group of constraints dealt with the process of reading the research. As we all know, perhaps too well, reading research takes time. The lack of time was mentioned by about a third of the respondents as a constraint on making use of research. In addition to not having sufficient time for reading, respondents mentioned the time required for handling the material -- sorting, cataloging, filing, copying, distributing, and so on. Not only is there no provision for this time within the normal working schedule of most teachers, what time is available is often taken by other institutional requirements. One school reported time was limited for any MILP activities because they were going through their periodic accreditation process. On the other hand, there were examples of people using the substitute time available through the project as a way of dealing with the time-for-reading problem. A number of respondents did, however, comment that they needed "more time for discussion and sharing in the whole group" or "more teacher interaction time." So the reading time was handled, but the need for time to reflect and to share what was learned from the readings still remained.

When time was available for reading, the problem of how to read the research material arose. There were two people who mentioned the need for teachers to develop more skill in reading research. One project consultant saw this type of reading as a new skill, and she said teachers thought they knew how to get information from research, but they had difficulty doing it in this context. Another project consultant suggested teachers need in-service training on how to read research. The value of providing some instruction and practice in reading is supported by the report from one school that providing such a workshop helped teachers begin reading.

Most teachers -- if not all -- have been exposed to this type of material at some point during their formal education, and have, generally, dealt with it by writing papers. We need to consider how the change in context from college classes to their own classrooms changes the way teachers deal with the material. A related consideration is the role of the project consultant in providing instruction and continuing support for this reading.

A final factor was reluctance on the part of some teachers to read. This was mentioned by both the project consultants and a Steering Committee chair. They referred to teachers as "reluctant to read" or "resistant to reading the packets." One Steering Committee chair said she had tried everything to encourage

teachers to read the packets, but "teachers did not want to read the packets. They felt that it was a burden -- like being punished." Others said teachers were "not willing to read," but preferred to have material presented to them.

One project consultant's comment pointed out that this is not a universal trait of teachers when she said, "Those teachers who wished to participate in the project actively read materials. Those teachers passively engaged read little or nothing." One of the things we can infer from this is the role that can be played by the consultant, principal, Steering Committee chair, and other teachers in encouraging the active involvement of members of the staff.

Amount of research

The second group of constraints were related to the amount of research that schools received. A fifth of the respondents mentioned the sheer volume of material they were sent. One said that at first they were grateful for all the material, but they soon felt overwhelmed. People became bogged down in handling the articles in the larger packets. A great deal of time and energy was devoted to producing and distributing copies of articles to subcommittees and individuals. Then the problem became how to begin to read all of it and develop some kind of group understanding of the material. Suggestions for changes included providing a table of contents or numbering each of the articles. There were also requests for sorting the articles into categories that would focus on parts of the broad subject covered by each of the packets. One project consultant requested the articles be prioritized so they could be read in order of importance.

These comments and suggestions point toward the dilemma of trying to provide enough material so the faculty can learn about all the options or opinions concerning a particular topic, but still providing a packet that is not so large that it is overwhelming to read or difficult to manage.

In addition to the volume of material, the timing of its arrival seemed to be important. Five schools reported they were receiving material too early. Initial packets were sent as soon as schools identified topics of interest. Apparently committee members need some time between the identification of an objective and the use of research. Respondents mentioned that committees were still getting organized, or that their committees had not yet defined their objective well enough to begin using the research material. On the other hand, a number of respondents commented that the material they received had been helpful to committees that were having difficulty focusing on a question or defining their topic of interest.

The interview comments show it is also possible to be too late. Some of the six original schools, which were in their

second year of the program, commented that material they were receiving was not being used because their decisions had been made and programs were begin implemented. It will be interesting to see if they return to some kind of research material as they continue to implement, evaluate, and modify these programs.

Characteristics of the material

The final group of constraints were the most difficult to identify, and I think they provide the most important and challenging group to deal with. They are the problems encountered by the people who have managed to get through finding time and dealing with the mass of material. They are the problems that are related to the ideas contained within the research material.

Seven of the respondents said teachers wanted the information to be more applicable. Some suggested that the material be sorted according to grade level, at least to the point of separating elementary- and secondary-level material. In addition to sorting by grade level, a request was made to "include activities for elementary, junior high, and high school so teachers would have to spend less time modifying."

Others wanted material that was immediately useful. One project consultant said material needed to be more practical. Teachers in her school want it to be useful tomorrow, and if it was "not site-specific" (tailored to the particular needs of that school) it was "hard to apply." The same view of usefulness is seen in a comment praising another information service because it "didn't send anything that wasn't take-and-go practical."

This concern about usefulness raises important questions about the role of this type of research knowledge in the professional life of today's teachers. How do we strike a balance between expecting teachers to read broadly and consider an array of options as they make professional judgments about their practice on one hand, and, at the same time, planning for and providing a variety of instructional activities for their students every day? How do we provide the time and support needed to come to grips with large amounts of information that is often presented in unfamiliar formats and terminology? Often this research is vague about exactly how a teacher might make use of the findings, and sometimes readers are confronted with findings that appear to be contradictory.

Teachers found the research difficult to use because it did not present clear, consistent answers to the questions they were asking. One respondent said it was "difficult to choose the 'cream,'" while another wanted to know, "Who is the leading authority in the area?" These comments seem to be indications of teachers looking for the single "right" answer they are accustomed to receiving. One respondent went further and said the packets should be screened so they contained non-conflicting

information that was "predigested and summarized."

These constraints led to a number of people -- generally the project consultant, but often some of the teachers -- doing some sort of presentation of the material. One consultant said her "teachers are not willing to read. They want information presented; they don't want to read it. They want inservices -- more workshops." There were also calls for one page summaries, outlines, highlighting, and abstracts.

All of these seem to me to be ways to avoid dealing with the ambiguities of transforming research information into classroom practice. The solution to this problem lies within the research community as much as in the teaching community. Clark (1986) advises teachers and researchers to "think more flexibly and creatively about the nature and roles of educational research, the needs of the practical world of schools and classrooms, and about new ways in which their two communities can communicate in mutually helpful ways."

If we are going to change schools into centers of inquiry in which teachers do more than present the curriculum as it is delivered to them, we will need to come to grips with these characteristics of research and the institutional and personal factors that constrain teachers' use of the resources that are available to them.

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Facilitating Application of the Knowledge Base to School Reform Priorities

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A paper presented as part of the symposium, Teacher Empowerment through Knowledge: Linking Research and Practice for School Reform," at the annual meeting of the American Educational Research Association in New Orleans, Louisiana.

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A review of existing research is a vital part of the Mastery in Learning Project, a program to restructure schools that the National Education Association has initiated at 27 different sites. A survey of these 27 schools reveals various methods used to encourage teachers to explore the knowledge base before deciding on action: preparing summaries, sharing research findings in small groups, presenting materials at faculty meetings, and having release time from teaching duties. Successful implementation of these methods may depend upon educating teachers in the process of reviewing research through seminars, workshops, and educational materials prepared specifically for this audience. Growing teacher empowerment and increased applicability of research to classroom practice may help teachers develop an on-going practice of reading research.

Facilitating Application of the Knowledge Base to School Reform Priorities

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Introduction:

One of the premises of the NEA Mastery in Learning Project (MILP) is that empowered faculty members will make informed decisions based on a review of research before implementing plans. To help Project schools carry out this activity, the national MILP has organized a resource bank called TRaK (Teaching Resources and Knowledge). These packets--folders containing copies of articles, bibliographies, announcements of workshops and conferences, etc. on subjects requested by MILP schools are designed to help faculty members become knowledgeable regarding the areas that they wish to explore for restructuring their schools. As of this time, the 28 packets cover such topics as cooperative learning, parental involvement, writing, critical thinking, communication, and computers in education. Personnel in schools are then encouraged to supplement this information on a local level, usually with the site-based consultant carrying out further investigation into the topics of interest. This paper is the report of a study to determine ways in which teachers at MILP schools use this knowledge base.

Method:

In early summer 1987, two staff members of MILP surveyed the 26 Project schools. Three different forms of documentation were used: personal telephone interviews with MIL steering committee chairs and/or consultants, year-end reports submitted by the schools to Mastery in Learning, and materials produced by the ethnography at the different schools. Seventeen site-based consultants and seven teachers provided data from 22 schools (ten elementary schools, three middle schools, three junior high schools, and six high schools; representatives from all except two of these 22 schools participated in the telephone interview.

Findings:

The most commonly mentioned solution to involving teachers in reading research was the placement of research materials in a central location--a library, the MILP consultant's office, teachers' workroom, etc. The frequent reference to this solution indicates that availability of the materials is of prime importance. The second most valuable method of encouraging the reading of research was the dissemination of these materials by a leader in the school, either a chair of a steering committee or subcommittee or a site-based consultant.

The practice of one person examining the research literature and then disseminating it among faculty members who had indicated an interest was

another solution in almost all the MILP schools. At one school, a committee brainstorming session determined questions which needed answering. A committee member was then assigned to find this information and distribute research literature to other members. Others who read research used recommendations from colleagues regarding the materials that most suited their needs. One school's solution was for a person to sort articles into levels of suitability--yes, no, and maybe.

Both the solutions mentioned thus far were used by all levels of schools--elementary, junior high, and high school. A method of involving teachers in reviewing research used primarily in junior high and elementary schools was sharing or reporting research findings in discussion groups. Each committee member was assigned to read a different part of the research and then report the findings to the entire group. Small groups reviewed the research and then presented their findings to a larger group. In two schools, one person presented a review of the research to the entire faculty. A solution to the reluctance to review research which was reported as quite valuable in one school was for groups to discuss their aversion to this practice. By finding the roots of these roadblocks, they hoped to overcome the problems. Through a definition of the problem, they felt that they could begin to successfully read research materials.

Leadership by site-based consultants helped teachers through instruction and modeling in the process of reading research. One consultant highlighted articles that applied to the school's situation. Another

consultant examined materials in the packets and outlined it, and a third planned inservice workshops for training in this reading.

Site-based committee chairs and consultants worked toward building enthusiasm for reading research. At one high school, the steering committee chair weekly distributed to the entire faculty a one to two-page abstract of an article or group of articles on one topic. Leaders at other schools posted abstracts on a teachers' bulletin board, provided announcements to faculty members, and individually talked about available materials. Subject headings for the files of research material were also distributed in one high school.

Release time for reading was a solution in one middle school and one high school. Substitute teachers gave MILP participants time during the school day to review research and to use time allotted to in-service for this review. One school organized their time by reading the materials in the morning and then dividing into discussion groups during the afternoon. In-service time was used for this purpose in another school. Teachers in one school used their own time during the summer for reading.

Subsequent Findings:

At the time that these solutions were recommended, the MIL Project had been in effect at the pilot schools for two years and at the other schools for one year. Therefore I surveyed steering committee chairs or site-based consultants at 23 of the Project schools in January 1988 to

determine any changes in teacher involvement in the review of research. All except two of the individuals interviewed reported an increase in teachers reading research during the present year. Other solutions have evolved during the present year. One school publishes a bi-monthly newsletter which includes the reporting of research. Research is also important to the faculty of the school that developed a pamphlet for public relations as they investigated the best way of putting together this material.

Many of the solutions previously mentioned are still employed in the schools. Two people stated that faculty are given reports, MILP in one school continues to publish abstracts of current research, and the consultant from one school posts materials on a bulletin board. A more widely-used method, used in eight schools, is shared discussion groups as a way of involving teachers in a review of the research. A central location for the research materials continues to be a highly effective method of getting teacher participation, and the policy of putting materials by subject in filing cabinets has grown more prevalent.

Other schools report the success of workshops for teachers to learn to review research. Two schools ask MILP research assistants to provide instruction in these workshops, and another school uses researcher-designed instructional materials which help teachers learn how to read research. In four other schools, the consultant leads workshops in reading research. Another school involves the local uniserve director in gathering research and helping the teachers read these materials. One steering committee chair stated the importance of

a workshop leader being an "outsider" who is trusted by the faculty and has some validity with the group.

A remarkable increase has been in the number of schools providing release time for the teachers to read. Eight schools--five elementary, one middle, one junior high, and one high school--as compared to two schools using this method earlier, presently use substitute teachers so that Project participants can have school time to read research and share their findings. This use of substitute teachers also builds collegiality among the teachers in one district with an MILP school; non-MILP schools in the district identify the days that the MILP school require substitutes so that staff development activities in other schools will not conflict with the need for substitute teachers.

Teachers' increasing perception of research having value in establishing programs is also proving an incentive. Representatives from three schools mentioned the impact of teachers enrolled in university classes. Because these teachers find research in their personal education to be valuable, they communicate their enthusiasm to their peers at the school. An excellent solution, according to one steering committee chair from an elementary school, is a connection with a university that will provide educators to collaborate with the MILP faculty. At five schools, supporting research is required whenever subcommittees recommend programs. At a pilot MILP school in the Project for almost three years, parents also demand the research. When a parent requested the rationale behind implementing a cooperative learning program,

knowledge of the research allowed the faculty to answer the question to the parent's satisfaction.

Additional Recommended Solutions:

Participants in the January 1988 survey were also asked to recommend potentially successful solutions. One steering committee chair reports that the use of substitute teachers creates a new problem. Some community members have stated that teachers neglect their teaching duties while having these meetings. She recommends the development of public relations strategies to show that people in education--like people in business--should be given time to advance their knowledge and build a base for improving classroom education. With training for substitute teachers, they can give an added dimension to the students' education through the variety of skills brought to the classroom.

A teacher in a southeastern school addressed the teachers' concern that much of educational research is not currently practical. According to a representative from a MILP high school in that state, a problem preventing teacher willingness to read research comes from the gap between educational research and classroom practice. He stated that experts need to bridge that gap by participating in both cultures at the same time. To address that problem, Florida is setting up pilot programs in which researchers will spend part of their time teaching in an elementary or high school and then use their experiences as a basis for preparing future research. Faculty at this MILP school hope to

become one of these pilot schools, thereby participating first-hand in helping the bridge become a reality.

Conclusion:

One roadblock to teachers' reading research, materials being difficult to obtain, has been overcome by asking for these materials from the national MILP. The local site-based consultants, steering committee chairs, school librarians, uniserve directors, administrators, partnerships with universities, or education laboratories can also provide research for the faculty. Another roadblock to this reading, lack of time, can be overcome through release time for teachers during the school day, paid workshops during the summer, or reduced class loads.

Thus the greatest obstacle to teachers' reading research may to be that of personal apathy or rejection. Changes in attitude come gradually over a long period of time with carefully structured intrinsic rewards. Despite some concern about providing teachers with "pre-digested" materials--abstracts or summaries or existing research--this is a starting point for teachers. Some faculty members need to be shown that research is helpful before they take the next step in personnally investigating the materials. From reading summaries and abstracts, they become more comfortable with reviewing research, developing a common vocabulary through their reading, and are then willing to extend their reading.

Another reward will come from the teachers' belief that researchers are trying to bridge that gap between what teachers perceive as reality and what researchers perceive as true educational situations. With more and more research oriented toward the teachers' "reality" and growing personal involvement of teachers in action research, faculty members will develop a growing respect for the benefits of reading research. The enthusiasm for shared discussion groups also indicates a successful method for developing an interest in reading research. The collegiality that results from this shared experience provides both social and academic rewards for the teachers as well as modeling successful classroom practice.

Growing teacher empowerment also encourages teachers to read research. Rather than being comfortable with having someone tell them what to do, they will begin to initiate investigation of alternatives and to evaluate the materials themselves. When teachers see positive changes from programs which they have investigated through a review of research and then successfully implemented, they will develop the awareness that the research support has been the basis for their achievement.

Some teachers, however, need support from other faculty members, administrators, and educational leaders. A beginning step is taken when committees must find research that supports their recommendations before implementing programs. Teachers asked to read research may then continue the practice. Other teachers may require in-service to become more sophisticated in their review of research. Such training helps develop the common vocabulary necessary to reading research.

The attitude of leaders in professional educational organizations such as local and state branches of the National Education Association can also be invaluable toward inculcating the belief that reading research is vital. Encouragement from these people continues to create commitment within faculties.

The end solution of reading research, however, as one steering committee chair put it, is that "enlightenment breeds further reading." Just as success breeds success, teachers who reap benefits from reading research will continue the practice and share their successes with others. The final reward is the realization that restructuring schools is also a renewal process for teachers who become increasingly revitalized.